241 [412] machete (*machit*) or the *luk*, a sort of curved machete with a long handle, are the implements needed. The cutting of the grass from the plot where the milpa had been the previous year is *selab*; the cutting of bush grown for three or four years is *sok-uej*. The work of cutting the bush is done by the entire family, including children of seven or eight years old.

[221] [412] The planting is done between April and May after the first rains, with a long stick whose tip is hardened by fire or protected by a metal point. The seed must [242] come from large, healthy ears whose tips have been cut off because they have small [824] corn. The *olote*, or corncob, is either kept or thrown away at a distance to avoid its being used as fuel, for this would hurt the milpa which then would produce ears with broken kernels.

241 462 785 834 The task of planting is a very delicate matter, to be performed after fasting and sexual abstinence. It is exclusively a man's affair. A great banquet is served at noon, 241 574 generally outdoors as the hut interiors are small, to the friends and neighbors who will participate as helpers. Sometimes as [476] many as 10 men help to plant a friend's milpa. The meal is offered "precisely when the sun stops for a moment midway on its run and the doors of the Church of Heaven are opened, from where the quality of the banquet is observed." This is *s-uelil-abal* ('meal of the planting').

241 262 272 574 When things are properly done, the meal consists of a number of items. First the *atole* (*pajal-ul*) is served, which is slightly sour and sweetened with *panela*. As "com- [263] panion" to this atole are tamales (*chenkul-uaj*), which are prepared with cornmeal and ground beans. It is said that both things are to be served together so that "the seed may penetrate deep into the ground." 241 After this preliminary snack comes what is 252 considered the main course for each per- 262 son: a hard-boiled egg in a thick reddish 574 broth prepared from dough and ground 272 chile dissolved in water; a large tortilla;

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boiled beans; other tamales (*petul*), which are made from dough and whole beans; and finally, still more atole. The atole is served not in individual *jicaras* but in two or three large ones (*batzil-booch*), which are passed from person to person. The same is done with the other foods; they are served in one or two large pots (*mucul pulato*) out of which everyone serves himself. This banquet is given only on the first day of the planting; if other days are required, the milpero himself does the planting.

Since weeds grow rapidly during the rain season, the milpa must be hoed twice before it reaches maturity. For this the luk or coa is used and also the hoe (*asron*), the same one used to break the soil before planting. The first weeding is done in June, the second between July and August. Women help their husbands in this chore and sometimes do it entirely themselves, since the men are in the habit of leaving for Tapachula to work as peons on the coffee plantations.

Also in the milpa beans of several varieties are planted: *chuil-chenek* (or *ibes*, according to the Ladinos); *botil*, a large common bean; *xakil-chenek* or *frijol de vara*; and the *x-luumil-chenek* or *frijol de la tierra*, thus called because it is a creeping plant.

Chile is planted on a separate lot, 15–20 m. square. The planting is done during the first weeks of March, in alternate years so that it will not coincide with the year when the people of Cancuc plant cotton. Chile planted by the people of Oxchuc is *dzajal-ik* or red chile.

Toward the end of August, the first fruits are ready (*unimajam* or *jilote*, according to Ladinos). These are received with great joy by the families which are by then lacking food. From each plant, which provides two or three *jilotes*, the farthest down is picked to let the other two grow bigger. These jilotes are boiled without salt and are eaten whole, including the husks.

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owned plots of less than five hectares, corn is clearly the major crop, with 83 percent of the land devoted to its production. In the ejido lands, it is cultivated on less than 50 percent of the land, with wheat and beans sharing the remaining lands. Included in the category of ownership of five hectares or more are three large fincas where cattle fodder is grown. These fincas employ eighty-three laborers, some of whom live in the town center.

Since the Mexican census figures do not take into account the total land holdings of the household, I shall refer to the data on land use from my own census in 1964 (Table 5). Beans are grown (except in three cases) only if the household has more than the one hectare of ejido land grant. Corn and beans are grown together only on irrigated lands, both in high lands and in low country. Most farmers with ejido land grow wheat in addition to corn only when the land is in continual production, since it is believed that wheat gives "heat" to the land and improves the soil. This belief is supported by the real value of crop rotation.

Decisions concerning what crops to plant where are based on two sets of criteria: topology and soil characteristics. These criteria, furthermore, are the basis for determining what kinds of seed should be planted and what techniques of cultivation should be utilized.

Topological criteria. Because of the relative wealth of land resources, the steep hills are left uncultivated. All of the steep hills are communally owned, and the second growth of pine and scrub oak provides firewood. Tall pine growing in the higher lands of the colonia of San Vicente is sold by the community to private lumber companies.

The "belly of the land," the mound-like hillocks at the bottom of the hills, are sometimes cultivated or used for pasturage. On hilly lands farmers put rocks in the banks or curve the rows of corn to avoid erosion. The very low lands of the valley floor must be drained by digging ditches.

The flat irrigated lands of the valley floor are the most desirable lands for cultivation. The Indians are reluctant to sell these lands, and hold on to them until they are forced to sell.

When the officials reach concensus on what the mean yield (or *medio calculo* as they call it) is, they multiply this by the known amount of seed planted. Every six years a house-to-house census of what was planted is made.

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242 *Soil characteristics.* The potential productivity of flat irrigated lands is evaluated on the basis of two criteria: color of the soil and consistency of the soil. The preferred land for cultivation is the black loam mixed with some sand, (*ʔihk'al hiʔiletik lum*). The better, quicker growing corn seed is planted here. These very productive soils are called "hot" lands (*k'ilin lum*). (Heat is associated with fertility in both lands and people: a pregnant woman and her husband are considered to be in a state of heat, and the contrast state of being cold is attributed to someone who is sterile.) The red (*tzab'alum*) yellow (*k'analum*), and white soils (*sak lum*) are poorer soils and the slower seed is planted here. These soils are considered "cold" (*sik*) and are thought to be "tired."

The loss of soil productivity is attributed either to the loss of the soul of the crop or to the fact that the soil gets "tired." Farmers have noticed that in the first five years of planting in Tulanca, the ejido land grant, the soil was "hot" and gave good crops. When this productivity was lost, people said the soul of the crop left. It is considered dangerous to start crops in the lower lands of hot country because when the location of crops is changed, the soul leaves its original residence. The notion of crop soul loss does not conflict with the awareness of natural causes of soil productivity. Fields are left fallow for four or five years when productivity diminishes and the soil is "tired." The irrigated lands are in continuous use because there is some replenishment of fertility with the overflow of the ditch waters. Cattle fertilizers are used sporadically. Those who have many head of cattle construct corrals into which they herd the cattle each night. The location of the corral is changed yearly. Corn and beans are then planted in the old corral with superior results. The dozen or so corrals in the town are owned and worked cooperatively by extended families and are referred to by the Indian patronyms—for example, *skoral Linetik* (corral of the Lins) or *skoral Čailetik* (corral of the Čailes). The one attempt to use commercial fertilizers provided by the Ejido Bank proved a technical success but an administrative failure (chapter 3). Indians noted the increased yields, but none have attempted to purchase fertilizers.

Soil consistency is evaluated on the basis of how easy it is to work. Wet, sticky, or clayey soil (*łučilium*) and stony soil (*kełilum*) are least desirable. Sandy soil is easier to work, but soil productivity depends on a loam

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base, so the farmers prefer to plant the better, quicker-growing corn seed in a mixed sand and loam soil.

The final evaluation of land is based on results at harvest. The range of variation is large: from 48 liters of yield per liter of seed to 80 litters of yield per liter of seed. Township officials say that the average harvest is five *fanegas* (1 fanega equals 12 liters) or 60 liters per liter of seed. Market prices are of less importance in deciding what crops will be planted than are considerations of what the soil "wants" and what labor is involved. Corn is grown on all kinds of land, whereas beans and special crops such as cabbages can be grown only on the more fertile soil. Wheat can be grown only where there is irrigation. One farmer raised cabbage in cooperation with a Ladino and earned 1,000 pesos, four times the amount he earned with his wheat crop the previous year. Despite the greater return for cabbage, the farmer did not plant it the next year when the Ladino, who had supported the first venture, withdrew his support. The reason he gave for this was the fact that there was more work involved and he could not accomplish it alone: first the crop had to be planted, then transplanted, then irrigated every three days in the early growing period, and cultivated two or three times; every eight days he had to get rid of worms. He estimated that growing cabbage involved well over four times the amount of work necessary for growing corn.

Labor. Most agricultural work is performed by members of households with exchange or hired labor. There is no specialization of labor when the work force includes two or more men since the men cooperate in doing each task. Communal labor is restricted to the maintenance of the main irrigation ditches. Each year the ditches are dug out where the sides have eroded and cleaned of brush and leaves. The president and judges unite to decide on a time for this work and announce it on a loudspeaker of one of the cantinas. This usually occurs around the twenty-fifth of December. Formerly, all the men of the community helped in this work whether or not they owned irrigated fields. In 1958 those who did not own such land "got smart" and refused to work.

In 1962 the civil officials decided that a cement canal should be installed near the source of the spring. They tried to finance it with contributions

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653 621 241 423 from all men of the township, but again they were refused by the farmers who did not own irrigated land. The officials then sold trees in the communally owned lands to support the project, which cost 2,000 pesos. The farmers without irrigated lands still bore the cost although indirectly since community resources were expended in subsidizing the work.

241 The scheduling of agricultural activities follows an annual cycle for the three major crops, corn, wheat, and beans.

243 242 *Corn*. In corn production, the greatest discrimination comes in the selection of seed.[4] Seed is chosen from cobs which have the most grain. The farmer must look carefully to see that none of it is rotten, since if one grain is bad, the entire five grains put into each hillock will rot. There are two major kinds of corn: a quick-growing variety and a slow-growing variety. The first is preferred, but not all soils "want" it. The bitter soil "wants" the slow corn which must be planted about the first of February. [177] A new corn seed introduced by some developmental engineers in 1957 yielded more grain, but it was not as flinty as the old variety and rotted quickly.

243 The soil is prepared by cross-plowing the land three times in one direction and two times in the other. Those who do not own their own oxen team do it just once because of the additional expense. In planting, the farmer is careful to measure rows evenly, five handspans between rows, and five handspans between each hillock, forming a square which permits the maximum growth of each plant. Five seeds are placed in each hillock. In hot country, the land has not been worked over as well, and as a result it cannot be measured as accurately because of rocks and trees. This upsets the agriculturalist's sense of symmetry and beauty.

Once the corn has been planted, the scheduling of activities is based on the maturation of the plant rather than on a calendrical sequence. The scheduling of activities in corn production is shown in Table 6. The starges of growth in the corn plant and the activities related to them are listed in Table 7.

Cultivation is performed twice, to kill the weeds and to pile up earth at

4. The botanist Anderson (quoted in Lévi-Strauss 1966:73) points out that the careful separation of seed planted in each plot distinguished Indian from non-Indian agriculturalists in other Middle American communities.

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Wheat. In selecting the seed, the farmers choose those heads with the most kernels—there may be from thirty to eighty on each head. The same kind of seed must be used in planting each plot of land or the soil "does not give well." A new wheat seed was introduced by an American agronomist in the 1950s. The following reaction by an informant reveals why most of the farmers decided not to use it: 243 177

There is a quick-growing wheat, called foreign wheat because a foreigner brought it and planted it in the soil. Those who wanted to try it were given some. It was difficult to harvest because it was very dry and broke easily. Most of the grain was left behind on the ground. When it got to the threshing floor, most of it was broken. Therefore the town did not want it. So we continue planting the common wheat and it doesn't break.

The inefficient harvesting techniques force the people to consider loss of grains in deciding what wheat they will seed. However, a few of the farmers continue to grow the new wheat.

The scheduling of wheat production is shown in Table 8. The *arada* plow, introduced by the Spaniards (Foster 1951) and made locally by farmers for their own use, is commonly used to prepare the land. A few farmers borrow the plow of a relative, or sometimes a metal plowshare is bought in the departmental capital. 243 [407] [177] [426]

The harvest is the most arduous work in wheat production, but because it is done with the assistance of four or five helpers, usually brothers or compadres, it is a gay occasion. There are about a dozen threshing shelters which are individually owned and rented for 5 pesos a day. At the height of the harvesting season, the farmers have to wait for their turn to use the shelter. After the threshing, a fiesta is held in the house of the owner of the wheat at which liquor and a meal of beef stew is served. Since the labor involved is based on exchange rather than payment, the owner will take part in the harvest and celebration of those whom he has helped. [476] [423] [427] [796] [476]

Beans. The choice of locale and the time of planting vary more radically for beans than for other crops because of the greater differences in type of seed. The two major types of beans are (1) ground beans, of 244

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of what seeds grow best in which soils. Good, fast-growing seed is not sowed indiscriminately but is limited to use on more fertile irrigated lands. The size of a family's holdings is the primary factor in deciding what proportion of the three major crops—corn, beans, and wheat—they will grow. Where they grow each of these crops depends upon the quality of the soil categorized by topological criteria, consistency, color, and proved fertility. Decline in productivity is attributed to wearing out of soil fertility because of overuse as well as to loss of the soul of crops. The first explanation leads to adaptive behavior, in which the land is "rested" or turned over to cattle grazing, and to crop rotation, alternating wheat and corn crops. The second explanation leads to adjustive behavior in which the agriculturalist takes care of ceremonial obligations to the saints and to the "owner of the milpa."

The scheduling of activities is determined by the knowledge of time required for maturing of the crop and by expectations concerning seasonal fluctuations as they affect rainfall. Although the farmers have some control over water supply through irrigation, dependence on rainfall for the non-irrigated fields means that sporadic appeals to the ancestors or saints are made to ensure rain in the growing period. These rituals are not as integrated in the agricultural production cycle as they are in the neighboring towns of Chamula and Oxchuk or in the colonia of San Vicente where irrigation facilities are lacking.

Traditional techniques of pottery production are maintained by a tightly organized schema of procedures which allows for little variation in technique or form. Learning of productive techniques is facilitated by a fine segmentation of tasks. Knowledge of local clays and tempering has been stabilized for at least five hundred years of occupation in this area. Women's work is entirely lacking in rituals to ensure the success of their efforts.

These given sets of cognitive orientations in economic activities do not exclude the possibility of considering new ways or means of doing things. Agriculturalists have tried the new seed introduced by agronomists, but have found them wanting in their resistance to mold, in the case of corn, and in their portability, in the case of wheat. Fertilizers have been tried, but the credit costs proved too high for the agriculturalists to continue. Women were willing to try a kiln in place of open firing, but either the model introduced was faulty or they were not taught to use it properly.